

DEFENSE LOGISTICS AGENCY

SEPTEMBER – OCTOBER 2010

LOGLINES

**RESEARCH
AND
DEVELOPMENT**



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from the **DIRECTOR**

Navy Vice Adm. Alan S. Thompson, SC, USN
Director, Defense Logistics Agency

At the Defense Logistics Agency we have a long history of providing flexible, agile support to America's warfighters around the globe. This impressive track record and the DLA team's ability to navigate a challenging course have served the agency and its warfighting customers well.

Our tremendous bench strength is one of DLA's best assets, and I look to harness the combined power of that asset through the new "We are DLA" initiative, which rolled out across the agency this summer.

As the Defense Department's combat logistics support agency, DLA has served

warfighters for almost 50 years, but its organization names have largely reflected individual missions and locations – never the global DLA enterprise. "We are DLA" is changing that. Through this initiative, all of the agency's business units have been renamed to emphasize their DLA identity, as well as the commodity or service provided to customers.

It is my goal that this initiative helps build a greater sense of community among our global workforce and a single-agency environment that shows warfighters just who DLA is and what we provide to them.

Demonstrating DLA's broad reach to customers has never been more important than now, as we work to continue supplying world-class support in an environment increasingly defined by constricting budgets and expectations to do more without additional resources. Our partners in DoD are looking to DLA to help them save money and stay

mission-ready. We must continuously look for ways to become more efficient in our daily operations and pass that efficiency along to warfighters by way of more effective service and lower costs.

Stewardship is something I've spoken of often as DLA's Director and pursued through goals outlined in my yearly Director's guidance. American taxpayers must get best value for each dollar spent on logistics. DLA is well positioned to take on additional responsibilities because its capabilities are scalable; we can add greatly to our business operations without a commensurate increase in resources.

The coming months will be challenging as we continue support to the plus-up of forces in Afghanistan and the responsible drawdown in Iraq, and charge ahead to meet Defense Secretary Robert Gates' goals for streamlining operations. I have the upmost confidence our team will rise to the occasion. ♦

LOGLINES

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Research and Development

Combat Counterfeits

Story by Beth Reece

Fakes, knockoffs, counterfeits: whatever you call them, imitation products have plagued every industry from designer apparel and electronics to prescription drugs. Military equipment is no exception, and the consequence of malfunctioning gear can be dangerous to warfighters.

Once a counterfeit product makes its way into the military supply chain, it becomes an issue for warfighters and for the Defense Logistics Agency, America's combat logistics support agency.

"We will go after any supplier that knowingly provides us counterfeit parts," DLA Director Navy Vice Adm. Alan Thompson told reporters early this year when asked if counterfeit parts are an increasing threat to military logistics.

The Government Accountability Office reported in March that the extent of counterfeit parts in the Department of Defense supply chain is unknown. For DLA, that's due partly to the fact that counterfeits have always been classified as "non-conforming parts," which is any item, part or product packaging with one or more characteristics that depart from

the specification, drawing or product description requirements in a contract, said Dan McLaughlin, a technical and quality analyst for DLA Logistics Operations' Product Assurance Branch.

"Everything came under the umbrella of 'non-conforming,' so when people started asking how many counterfeits we had in the system, we had a difficult time segregating them," McLaughlin said.

In April 2009, the agency began defining a counterfeit part separately "as one whose identity or pedigree has been deliberately altered, misrepresented or offered as an unauthorized product substitution." DLA also created the new DoD Counterfeit Parts Integrated Project Team to help develop anti-counterfeiting guidance and has begun research that will determine whether data-mining techniques can be used to home in on potential fraudulent suppliers.

Intent To Counterfeit

"Deliberately" is a key word in the definition of counterfeit parts, McLaughlin said, but pinpointing the true "crook" is rarely easy.

"Let's say somebody pours water into a bottle, puts a 'Deer Park' label on it, and then sells it for \$1.50. Even though the water might meet Deer Park's criteria, it's a misrepresentation of the Deer Park brand," he explained. "The question then becomes 'Who misrepresented it?' If you bought the water from [grocery retailer] Giant, and Giant bought it from a distributor thinking they were getting Deer Park, where exactly was the intent to counterfeit?"

McLaughlin also emphasized the definition's inclusion of "unauthorized product substitution."

"For example, you receive an item that lasts 1,000 hours, but you need it to last 2,000. When you install the part, it works perfectly and you assume it meets requirements, but then the life expectancy ends up not meeting DoD's criteria," he said. "The item may meet commercial standards but, for us, it's an unauthorized product substitution and is considered counterfeiting when it's done deliberately."

DLA's approach to combating counterfeits includes risk assessments of specific commodities. The main concern today is microchips, tiny electronic circuits found in computers and other military equipment.

"The problem is that people in foreign countries are taking ... trashed circuit boards and buying them only to mislabel

A Sailor repairs the integrated circuit board of an EA-6B Prowler aircraft. Electronic circuits found in computers and other military equipment are one of the most counterfeited items today.



them and sell them as new," McLaughlin said, adding that counterfeiters typically target items with high profit potential and those that are difficult to distinguish as fraudulent.

Quality assurance specialists occasionally request high-risk commodities be tested by one of DLA's four product testing centers, which are designed to measure product compliance. In fiscal 2009, DLA's Electronic Product Testing Center in Columbus, Ohio, examined 19 microcircuits from the same lot. The items lacked the consistency expected of ones with the same date code, said John Evalsky, EPTC site manager.

"Differences were noted in internal components," he said.

Some also had different construction features and markings on the inside. The EPTC's test data aided leaders in their decision to remove the parts from DLA stock. Legal experts from inside and outside the agency frequently request results from DLA test centers as they work to determine whether a particular business is indeed counterfeiting.

"We ask ourselves if there's a way to get ahead of the game and be prepared for the next round of counterfeit items," McLaughlin said. "But it's hard to say what's on the horizon. The best thing we can do is look for trends."

In the future, he added, manufacturers may be able to embed information in material to identify it as an original part. This could be particularly beneficial in cases where resources are diminishing and the production line is ending.

"It's going to take a couple of years for us to see if this is a viable option because we have to determine how costly it is, how difficult the process is and what the return might be on equipment investments," McLaughlin said.

High-Risk Suppliers

Officials said DLA also expects to combat counterfeits by targeting high-risk suppliers. The DoD counterfeit team, which McLaughlin co-chairs, is considering use of a qualified suppliers list that would exclude suppliers with bad histories or those who cannot provide documentation of their products' authenticity. Many agencies already

have such records, but McLaughlin said he suspects that listed suppliers are audited with varying degrees of stringency.

Early this year he proposed government agencies share the work of auditing suppliers and use the same criteria. This would keep a single agency from being overburdened with doing all audits and make use of various government agencies' close proximity to suppliers throughout the United States.

He said questions asked of suppliers during the audits could include: "Where do you get your material? Do you audit those raw materials suppliers? How do you find the batch and material source? What do you do if you have a problem with a supplier's material? And, how do you document it?"

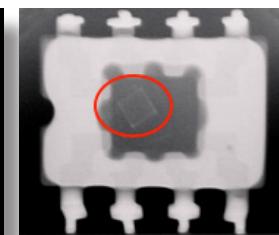
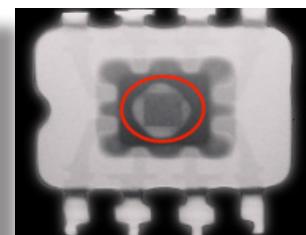
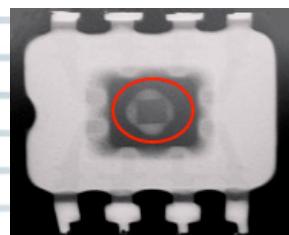
Suppliers that resist audits would not be eligible for the qualified suppliers list, McLaughlin said.

"By doing this, we're able to mitigate some of the risks because we're not doing business with suppliers that lack proper controls," he said.

DLA is also looking for ways to target "CAGE hoppers," a phrase commonly used to describe vendors that switch to a new Commercial and Government Entity Code once they've been caught doing bad business with the agency. Assigned by the DLA Logistics Information Service, CAGE codes are used to identify a given facility at a specific location. CAGE hoppers, who've also been termed "kitchen-table brokers" because they

Although these devices were marked with approved part numbers and logos, they were also marked with the same production lot code. Inspection of the parts reveals different lead-frame design and case contours. Authentic products with the same production code should not have these differences.

X-ray examinations show differences in die placement, size, cavity size (circled in red at right), and lead frames which are not characteristic of authentic products.



Images courtesy DLA Land and Maritime



Air Force Airmen 1st Class Corey Hook

An alert posted on the web-based Government-Industry Data Exchange Program last fall made Defense Logistics Agency leaders aware of potentially counterfeited o-rings, like those seen here, and led to the removal of some o-rings from the aviation supply system.

items to us," she said.

George compared the 117 companies to a list of DLA vendors and found that 18 of them had indeed recently sold parts to DLA. Two of them had filled more than 800 DLA orders during the time the initial company was said to have been counterfeiting. She sent letters to each of the 18 companies asking if they'd purchased any of the material in question and if they might have inadvertently sold it to DLA. One came back with a positive response.

"That one company had bought three different types of O-rings for our kit assemblies," George said. "I reported that to the aviation supply chain, and they're already finding some of the kits in stock and working to remove and replace those O-rings."

This was a classic example of how useful GIDEP can be in identifying and reporting counterfeits, she said. But it also shows how time consuming an investigation can be.

"There's a certain degree of sophistication where counterfeiters will sell an item to one person, who sells it to another, who sells it to another," McLaughlin added. "They make it very labor intensive for us to trace the exact point of intent."

But, he said, keeping counterfeits out of the supply system can be done with collaboration from suppliers, contracting and legal experts, and military customers.

"We have to work together on this," McLaughlin said, "because having any type of non-conforming equipment or counterfeit material in our system is a problem that jeopardizes our warfighters." ★

typically operate from home and obtain supplies through Internet sites like eBay, often have family members apply for new codes, McLaughlin said.

Researchers with LMI, a government consulting group, are working with DLA to determine methods for capturing CAGE hoppers. One possibility is to conduct detailed investigations with individuals or small businesses requesting CAGE codes. While the effort is still in the research and development phase, Thompson said the proposed methods show potential.

Reporting Fakes

Guidance set forth by the Office of Federal Procurement Policy requires federal activities report information about non-conforming material and counterfeit parts that could affect other agencies and industry to the Web-based Government-Industry Data Exchange Program, or GIDEP. The policy hasn't been widely enforced, said Paula George, quality technical analyst for

DLA Logistics Operations' Quality and Technical Branch, but growing concern about counterfeits has encouraged many agencies to adopt the tool.

"People are realizing that GIDEP can be a very useful tool in dealing with this issue," she said. "Each DLA supply chain has representatives who monitor the site for alerts concerning products we supply to the military."

When the Federal Aviation Administration posted a GIDEP alert last winter about a company that had provided unauthorized product substitutions for a type of gasket known as O-rings, by substituting commercial-grade material for aviation-grade and military-grade material, George read the full report. It listed 117 companies the vendor had sold to, plus six pages of part numbers the vendor was believed to have counterfeited.

"We knew the company in question had not directly sold parts to DLA, but we didn't know if any of those 117 companies that had bought from them had sold



Research and Development



Research and Development

ALL SYSTEMS GO

Story by Sara Moore

You pull your cell phone out of your pocket and dial a number, knowing you'll be connected to your friend in a matter of seconds.

An Air Force pilot checks his radar system, confident that it will give him an accurate view of everything around him in the sky.

Technology runs the world around us, not only in our day-to-day lives and interactions with each other, but also government and national defense operations.

Within every gadget, appliance and weapon system used by warfighters and their civilian counterparts are microcircuits – tiny chips that keep technology running at top speed.

As technology advances rapidly, microcircuits too must evolve to keep delivering faster, better results. But while most taxpayers think it's normal to replace a cell phone or computer every two years, it's nearly impossible to redesign or replace a multi-million-dollar weapon system in that amount of time.

Many of the weapon systems the military uses rely on microcircuits to keep them functioning, but as technology advances within civilian industry,

the availability of the circuits the military needs shrinks.

Defense Logistics Agency Headquarters and DLA Land and Maritime established the Generalized Emulation of Microcircuits program years ago to address microcircuit problems and ensure the military would have the chips it needs to maintain its weapon systems now and in the future.

The Advanced Microcircuit Emulation program, a DLA-funded program, provides a source for military-grade microcircuits that are otherwise obsolete, keeping crucial weapon systems in the fight and ultimately saving taxpayers millions of dollars.

Filling a Need

The emulation program, GEM, was born out of necessity in the mid-1980s, said Don O'Brien, who was the DLA Research and Development program manager from 1984 to 1999. Before that time, the military was the main driver of the integrated circuit market, because of its use of circuits in many electronic and weapon systems, he said.

In fact, microcircuits really got their start in military and space hardware, O'Brien said. However, as technology





The Defense Logistics Agency's Advanced Microcircuit Emulation program uses reverse engineering to ensure military-grade microcircuits are available to keep weapon systems, like this AT-4 anti-tank rocket, fully functioning.

— Photo by Army Spc. Eric Cabral

began to advance, agency officials and defense contractors began to recognize a growing disparity between the lifecycle of defense weapon systems and the availability of microcircuits.

"It was bad then, and it's only gotten worse," O'Brien said, noting that now, microcircuits are typically only in production for a few years while the military is using the same weapon systems for decades. Manufacturers no longer want to build microcircuits for the military, because the military now makes up only a fraction of the integrated circuit market – less than 1 percent, he said.

Redesigning circuit boards within

weapon systems would have been very expensive and impractical, so DLA began working with two contractors doing research and development on how to reverse-engineer and build microcircuits, said Bill Johnson, DLA's AME program manager.

The original GEM program went through a research and development phase, verification, and then transitioned into full production in 1997. When the program began producing microcircuits, DLA continued to increase its capabilities with the AME program as its microcircuit research and development arm, Johnson said.

Today, DLA works with one support contractor – the Sarnoff Corporation in Princeton, N.J. – on the GEM and AME programs. Naturally, the programs are closely tied as the AME program develops the technologies that the GEM program uses for production, said David Robinson, GEM program manager.

Both programs use several different sources of input, such as customer requirements, market studies on obsolescence and input from industry partners, to determine what technologies to pursue and what parts to emulate, he said.

"Jointly we come up with what we think or what we know is the next



Air Force Tech. Sgt. James D. Mossman

technology trend that we're going to have to go after based on the customer-driven requirements and obsolescence cycles from the industry," Robinson said. "It's just a joint effort between all of us to determine what we need to go after next."

The Emulation Process

Once a part is selected for emulation, it goes through four major steps in AME, Johnson said. First, it has to be reverse-engineered by Sarnoff and then designed in their system. Sarnoff then needs to build that part and test it to ensure it meets the requirements.

The same microcircuit technology is typically used throughout a family of parts, so once Sarnoff has developed the capabilities to emulate that technology, they begin to test it in actual parts, Johnson said. Test parts are selected from DLA Land and Maritime's current requirements, he said, and then are engineered, built, designed and tested.

Building microcircuits is complicated, so developing emulation technology is a multi-year process, Johnson said, noting that he and Robinson are constantly looking ahead several years to determine what technologies will be needed so that as one emulation cycle reaches its half-way point, they can begin on the next.

The AME program is constantly improving its processes to keep up with technology and emerging requirements, Johnson said. As part of that, Sarnoff recently used Congressional funding to buy new manufacturing equipment to replace some aging machines.

"As the industry has that constant

Microcircuits are widely used throughout the military, not only in weapon systems, but also in technological and communication systems, like this antenna mast group for a Patriot missile.

Air Force Staff Sgt. Michael B. Keller



Military weapon systems and vehicles, like this F-15E Strike Eagle, require microcircuits that have become obsolete in the civilian manufacturing world. The Defense Logistics Agency's Advanced Microcircuit Emulation program provides a solution to keep these systems running.

AME & GEM Working Backward

There are three ways the Advanced Microcircuit Emulation and Generalized Emulation of Microcircuits programs support customers when they need microcircuits that have no known source, said David Robinson, GEM program manager.

The first way is almost invisible to the customer because it involves behind-the-scenes work by DLA, he explained. If the agency receives a requisition that can't be filled through traditional methods because a manufacturing source doesn't exist, it will be sent to the emulation program for development and production. Once the process is complete, customers receive the parts they requested.

The second way customers can get emulated parts is to send a military interdepartmental purchase request straight to the GEM program at DLA Land and Maritime, Johnson said. GEM will then task Sarnoff Corp. to develop and produce the part, and it will be shipped to the customer.

The third avenue for getting emulated parts is through a contractor doing repair work for the military. The military services often have contractors dedicated to doing repairs on their systems, and these companies can contract directly with Sarnoff to buy parts that aren't available through industry, Johnson said.

Whatever method is used, Johnson said, the AME and GEM programs are dedicated to finding ways to meet customers' needs.

"I don't know that we've ever encountered somebody who wanted parts that we couldn't figure out [a way to] get us engaged in solving their problem," he said.

— Sara Moore

Research and Development





A Sailor performs maintenance aboard the attack submarine USS Newport News. Submarines and the weapon systems aboard them are some of the systems supported by the Defense Logistics Agency's Advanced Microcircuit Emulation program.

evolution, we have that same sort of constant evolution in R&D," he said.

From Emulation to Production

After technologies have been emulated and tested in AME, they transition to GEM for full-scale production. GEM has a production contract with Sarnoff for a range of technologies and sells finished parts at a fixed price, like any other manufacturer, Robinson said.

He stressed that GEM does not try to compete with industry, but rather fills a void by producing parts the industrial community is no longer willing to make.

Three-hundred-fifty-six weapon systems currently use GEM parts, Robinson said, and the program has sold more than 100,000 units. In some cases, he said, the program sells fewer parts than originally forecast, because the parts built are high-quality and don't fail or need replacement as quickly as parts from the

original manufacturer did. Common obsolete parts are typically used by multiple weapon systems.

In addition to supporting the U.S. military, the GEM program has done studies with nations like the U.K. on common components within weapon systems and the possibility for emulation support, he said. In a recent study on the AV-8B Harrier aircraft in the U.S. and U.K., GEM representatives found many parts the British military thought were obsolete but could actually be emulated. Robinson said he has been invited back for a follow-up meeting about how the GEM program can support their needs.

A Long-Term Solution

As of 2008, the GEM program is credited with saving the government more than \$680 million by keeping weapon systems running and preventing the need for costly system redesigns. That number is very conservative, Robinson said, noting that the program produces up to an 8:1 return on investment. The cost savings are formally attributed to GEM, he noted, because it sells the

parts, but without AME, the technology wouldn't be available.

Making sure the technology stays available to the military is the reason the AME and GEM programs exist, and they really do offer a permanent solution to the problem of microcircuit obsolescence, said O'Brien, DLA's original R&D program manager.

During the early days of the program, O'Brien and his colleagues would often discuss how expensive it was to emulate parts compared to the original purchase cost. However, he said, the parts were no longer available at the original cost and the important issue was keeping the weapon systems running without having to redesign circuit boards at a monumentally higher cost – anywhere from \$250,000 to \$10 million.

"Both GEM and AME were designed to provide microcircuits that no one else will provide, and that's still what they do," he said. "It's very, very expensive to not be able to get a microcircuit if you have to repair something."

Some worry that these programs could be in jeopardy because of the very

The military uses the same vehicles and weapon systems for decades, like many of the Navy's larger ships. To keep these aging systems running, the Defense Logistics Agency launched the Advanced Microcircuit Emulation program, which provides critical microcircuits that would otherwise be obsolete.

business model that made them necessary in the first place – it is not considered cost effective for a large manufacturer to continue making outdated parts used only by a fraction of its customer base.

However, the nature of Sarnoff Corp. will prevent that from happening, Johnson said. Sarnoff is an R&D-based company that has a low-volume capability for building parts, which is exactly what DLA needs for these programs. The company also isn't subject to the economic pressures of commercial manufacturing.

"What we pretty much tell people is, once we've emulated a part, you can get it as long as you need it," he said, noting that all of the parts DLA has emulated can still be built today. "As long as DLA is willing to fund the capability with Sarnoff, Sarnoff is willing to be in this business."

The AME and GEM programs will be needed for the foreseeable future, as commercial technology continues to advance and the manufacturing sources for military-grade microcircuits further diminish, O'Brien said. And while the programs have saved the government a lot of money over the years, he said, the most important benefit has been keeping America's warfighters mission-ready.

"Without these programs, some of the front-line weapon systems that the Department of Defense uses would not have been available," he said. "There's no question that keeping the airplanes and ships and tanks in service, ready to do their mission, is the overwhelming benefit." 

Navy Petty Officer 1st Class Carmichael Yanez



Research and Development





Research and Development

Custom Critical

Story by Sara Moore

On the popular television series American Chopper, the volatile father and son team at the helm of Orange County Choppers builds custom motorcycles by hand; working with vendors across the country to get specialized metal parts cast when what's needed isn't available on the open market.

For the military, getting custom metalcast parts to fix vehicles and weapon systems hasn't always been simple. A local, small-scale metalcasting shop just can't keep pace with the needs of military members worldwide.

But a collaboration between the Defense Logistics Agency and the metalcasting industry is working to change that.

When DLA was faced with difficulties procuring key cast components, it reached out to industry partners to create a network officials said benefits both worlds and improves the metalcasting industry as a whole.

The American Metalcasting Consortium is a collaboration between DLA, leading metalcasting industry trade associations and research universities that, officials said, aims to improve metalcasting technology and processes to enhance quality and

A civilian employee uses a cutting torch to remove castings from a subassembly of an M-198 155 mm howitzer at Rock Island Arsenal, Ill. Metal castings are critical elements for many military vehicles and weapon systems.

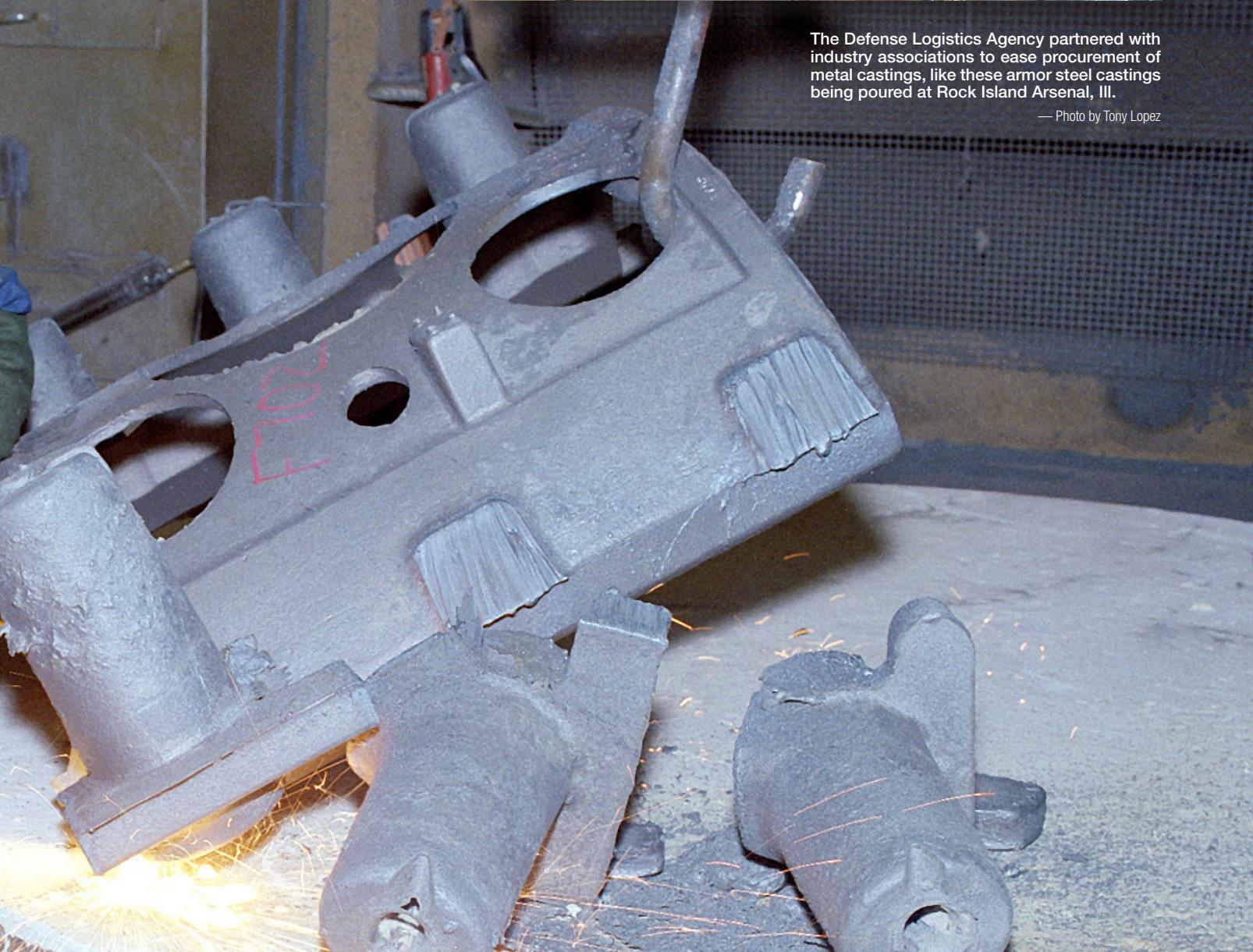
— Photo by Tony Lopez





The Defense Logistics Agency partnered with industry associations to ease procurement of metal castings, like these armor steel castings being poured at Rock Island Arsenal, Ill.

— Photo by Tony Lopez





Marine Sgt. Alex C. Sauceda

Metal castings are critical parts in many military vehicles, like this M1A1 Abrams tank. To overcome procurement delays for these parts, Defense Logistics Agency partnered with industry associations to create the American Metalcasting Consortium.

they may bid on a contract without realizing it requires cast components, and then have to delay the order while they search for a foundry with the proper tooling or create it themselves.

The AMC was created specifically to address these problems, while also improving the metalcasting industry overall, said Raymond Monroe, executive vice president of the Steel Founders Society of America. SFSA, which represents companies that produce steel castings, was one of the industry associations that originally founded AMC and is still a key member.

Working Together

The AMC has always been structured around a “three-legged stool,” Monroe said. The three principal components of the program are: the research and development component that focuses on improving metalcasting technology,

shorten procurement time for getting critical parts to military customers.

DLA teamed with four of the leading metalcasting industry associations to create AMC in 1990, said Dean Hutchins, casting and forging programs manager at DLA Aviation, formerly Defense Supply Center Richmond, Va. DLA funds the consortium as a research and development project, and AMC helps to maintain a viable manufacturing technology base within the U.S., which ensures DLA will have the resources it needs to support warfighters, he said.

“The consortium indirectly benefits DLA in that it maintains that viable manufacturing base that we need in order to get the parts that are required for warfighters,” he said. “Without a viable manufacturing base out there, it might be more difficult for DLA to get the parts.”

Breaking the Mold

Castings are parts made by pouring hot liquid metal into a cast, or tooling, to create a certain shape. Casting is a widely

Glen Morrel (left), Littlestown Foundry treasurer, explains the importance of casting in parts manufacturing to Michael Bess, American Metalcasting Consortium representative at Defense Logistics Agency Aviation, and DLA Aviation procurement supervisors Kim Licence and Arla Allen.

used manufacturing method, because it can easily create parts, especially those with a complex design, Hutchins said. Casting also helps to save material, and subsequently money, by eliminating the need to machine larger pieces of metal down into parts.

Cast components are often more difficult and costly for DLA to procure, Hutchins said, because each one requires a special tooling, or mold, to make. Many manufacturers don’t have the proper tooling in place, especially for parts for older weapon systems, he explained, or



Stephen J. Baker

direct engineering support for procurement, and training, and network tools focused on improving the understanding of metalcasting.

The R&D component is a key element of the program, Monroe said, especially for the industry associations. It consists of a portfolio of projects put together by AMC members, including DLA, to improve the metalcasting industry's technology.

Projects are proposed by each of the four industry associations who consider the challenges they face within their industry, as well as the commercial and technical challenges they face in meeting their customer requirements, he said.

AMC's technical advisory committee and board of directors review the projects and ensure they are applicable to DLA and Defense Department requirements, and then the projects are given the green light.

DLA generally relies on the industry associations to come up with the R&D projects, because they represent more than 2,000 different foundries in the U.S. and are also in close contact with research universities about technology issues, Hutchins said.

Each project takes about three years to complete, Monroe said, and AMC's goal is that by the end of that time, there will be at least some application of the new technology within industry.

AMC's R&D program is very attractive to industry, Monroe said, because throughout the country, there is very little money being invested in general manufacturing technology. Because of the lack of federal funding, universities are moving away from teaching manufacturing technology,

Air Force Staff Sgt. Jason Robertson



which degrades the engineering infrastructure, he said.

This issue is especially important to the Defense Department, which needs a strong supply base that can stay on the cutting edge of technology.

"As we lose our technology edge in the manufacturing sciences and basic components, we begin to erode our ability to dominate the battle space with the highest performance weapon systems," he said.

AMC is one of the few places where the metalcasting industry can use federal funding to attract additional private funding to identify practical technology development, Monroe said.

"That's why I get my most advanced members who are most excited about technology excited about working with DoD, because of the R&D program," he said.

Building the Future

Also within the R&D component of AMC, DLA and its industry partners work with metalcasting research universities on developing new technologies for the industry and adapting curriculum to focus more on the foundry industry, Hutchins said. This has the potential

Through the American Metalcasting Consortium and the Procurement Solutions Network, Defense Logistics Agency is able to support military vehicles, weapon systems and aircraft, like this C-17 Globemaster III.

to develop a future workforce for DLA, he noted, but also contributes to the industry overall, which is essential to the agency's supply base.

"Developing the workforce that's creating the parts that we buy is kind of a secondary spin-off or benefit of the project," he said.

Linking to Supply

The second principal component of AMC – direct engineering support to procurement – is run by the Advanced Technology Institute, which acts as a program manager for the consortium, Monroe said.

ATI has technical experts – former government employees and industry experts – who interface directly with DLA's supply centers to resolve casting supply issues, engineering-change requirements, and other issues that could hinder the efficient movement of the supply chain.

The third component of the consortium, the provision of general and

Research and Development



"As we lose our edge in the manufacturing sciences ... we begin to erode our ability to dominate the battle space with the highest performance weapon systems"

—Raymond Monroe

technical information, is the responsibility of the industry associations and has really helped improve communication between the government and industry and keep the casting supply chain running smoothly, Monroe said.

"A modest amount of the funding, but a great deal of the value, comes from exploiting the technical and commercial resources of the associations and putting them in a forum that makes them accessible to DLA and DoD," he said.



Courtesy Photo

Procuring Solutions

One of the most successful projects within that component has been the Procurement Solutions Network. The network was developed by the Non-Ferrous Founders Society, one of the industry association members of AMC, in 2005 as a solution to lengthy supply chains and disconnects between military customers and the foundries that produce cast parts.

The Procurement Solutions Network provides a few different resources to the government and industry, said Ryan

Moore, program manager for the network and membership director for NFFS. These include the Defense Tooling Database, the Defense Casting Suppliers Database and the Foundry Toolkit.

The Defense Tooling Database was the first resource developed for the network, Moore said. The database is made up of companies that have the toolings necessary to produce cast parts and gives DLA visibility to the bottom of the supply chain, all the way to subcontractors that typically would remain anonymous to the agency, but that are an essential part of the process, he said.

This database is

Metal castings, parts made by pouring hot liquid metal into a cast, are often difficult and costly to procure. Defense Logistics Agency created the American Metalcasting Consortium to help the metal casting industry and ease procurement of these critical parts.

particularly helpful with legacy weapon systems that may no longer be supported by a prime contractor or major manufacturer.

"If the company that has made the part in the past for DLA no longer exists, there's a resource to call upon who still has tooling and who has the capabilities to manufacture those parts, to quickly put a supply chain back in place without creating new tooling and adding the cost and lead time associated with that," he said.

The Defense Casting Suppliers Database is an online directory of companies that have the capability and experience to produce metalcastings for the military, Moore said. This helps military customers when they need a part that includes a metalcasting, but don't have a known source.

Expanding the capabilities of that database, Moore said he and his team have researched and identified these types of parts and they monitor bid solicitations to notify foundries that have the proper capabilities to produce the parts.

When parts requiring metalcastings are identified, Moore said, his team also integrates that information into the procurement order text for those parts, so that companies bidding on the solicitation know up front that the parts need castings, he said.

They have also worked with DLA Land and Maritime, formerly Defense Supply Center Columbus, Ohio, and DLA Aviation to set up a website that links directly to the tooling and suppliers



databases, and that website is included in bid solicitations for parts requiring metalcastings.

Including 'Mom And Pop' Shops

Linking the known capabilities of foundries with DLA's requirements is very beneficial because it has the potential to increase the agency's supply base while also providing opportunities for smaller foundries, Hutchins said.

"It links together everyone at the lower parts of the supply chain that are not always visible to DLA," he said.

The Foundry Toolkit helps companies in the metalcasting industry understand how to do business with DLA, Moore said. It includes information on how to bid on solicitations on DLA's Internet Bid Board Site, how to register to do business with DLA and how to meet defense procurement requirements, among other things.

Moore said his team worked with the small-business offices at DLA Aviation and DLA Land and Maritime in devel-

oping the toolkit, and it has been very beneficial to the industry.

Saving Time, Money

The Procurement Solutions Network has produced benefits in cost savings and reduced production and administrative lead times on solicitations, Moore said. Since the program began in 2005, it has been credited with \$1.6 million in cost savings and has significantly reduced lead times on orders, getting critical parts to military customers faster and more efficiently, he said.

"Through this network, through these tools, we have been able to help sustain a manufacturing supply base for cast components, which benefits warfighter readiness and support," Moore said.

The Procurement Solutions Network, and the AMC at large, create a win-win situation for DLA and the metalcasting industry, Hutchins, Monroe and Moore agreed.

Improving the industry as a whole

The American Metalcasting Consortium provides a link between Defense Logistics Agency, industry associations and research universities to improve the metal casting industry as a whole and enhance quality and speed procurement time for these critical parts.

and creating better communication between suppliers and customers not only ensures the military will get the critical parts it needs quickly, but sustains the health of the metalcasting industry and guarantees the future of the U.S. manufacturing base, they said.

"[This collaboration] has not only provided a direct benefit in giving us competitive technologies to compete in the global marketplace and to improve our technologies so we have advanced products that allow us to make the cutting edge components, it also demonstrates how effective those investments are," Monroe said. ⋆

Research and Development





Research and Development

Track This!



Story by Jonathan Stack

Every service member remembers their clothing issue – the hours-long wait in an almost endless line to receive an initial set of uniform items – during basic training.

But a partnership between Defense Logistics Agency Troop Support and DLA's Logistics Research and Development branch is slashing the amount of time it takes to issue recruit clothing and revolutionizing clothing procurement and lifecycle management.

As recently as 10 years ago, the process to provide recruits clothing and apparel required for training and active duty relied almost exclusively on someone recording information with pen and paper, providing opportunity for human error to impact supply chain data.

"[Radio frequency identification] technology offered a way to fully automate the [clothing issue] process and virtually eliminate human data recording errors," said Julie Tsao, DLA R&D program manager.

Through the use of RFID technology, a method of identifying unique items

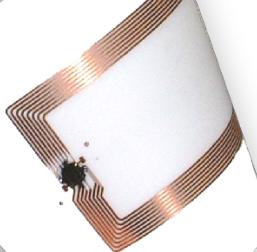
using radio waves, DLA team members can ensure a recruit's clothing bag contains the correct sizes and quantities of required items when the recruit carries the bag through a walk-through RFID reader.

Previously, recruits had to visually inspect items to verify correct quantities and sizes were issued, a process Tsao said could take up to four hours.

"Clothing issue has been streamlined using radio frequency identification device technology, [it now takes] 45 minutes on average for a recruit to receive a full

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clothing requirement at certain centers," Tsao said.

Typically, an RFID reader communicates with a transponder, which holds digital information on a microchip embedded in a tag or label attached to an apparel item. The item's identifying characteristics are accessed by passing a reader near the tag or label and can then be uploaded into a supply system where the data may be used to plan inventory or track demand for items.



U.S. Navy Photo

Navy recruits receive their initial clothing issue at the Recruit Training Center, Naval Station Great Lakes, Ill. A Defense Logistics Agency initiative is slashing the time it takes to issue recruit clothing.



The wireless transmission of an item's identity means the reader doesn't actually have to come in contact or line of sight with the tag, it just has to be swiped near the tag's antenna. Data can also be read through clothing and non-metallic materials, which reduces material handling time and resources, Tsao said.

Every year DLA Troop Support, previously Defense Supply Center Philadelphia, purchases and ships hundreds of thousands of uniforms and related items to service recruit training centers. More than 400 vendors supply these items, making it all the more important to collect and maintain precise data on items in the supply chain, she said.

"Accurate visibility of supply chain assets is critical for efficiency and effectiveness of managing these vital items," Tsao said. "RFID item-level tagging of these apparel items allows for vastly improved supply chain asset visibility."

In the near future, she said, DLA plans to expand on an inventory tracking system already in place for training uniforms and related items at Lackland Air Force Base's recruit training center in San Antonio.

At Lackland, RFID tags are printed on-site with a unique identification number, along with the garment's national stock number, nomenclature and size. Tags are then applied to individual garments, and tag data provided to DLA Troop Support systems for inventory management and accountability. The garments are then placed on shelves for issue to recruits.

As recruits' items are located during the clothing issue process, the pieces are placed in a duffel bag and then taken to a desktop reader to capture all of the unique ID numbers of the RFID tags at one time.

A display screen on the reader alerts the supply specialist to any missing,

incorrect or extra items and inconsistency in sizes. If all items are present and correct, the reader transmits a green light and the recruit can receive the duffel bag and complete the issue process. Item data captured by the reader is then funneled back to the agency for planning purposes.

"Afterward, item information is sent to the DLA supply systems, which can then be used to replenish inventory with real-time, accurate information based on specific items that have been issued," Tsao said. "Tagged items can then be traced from manufacturer, through a DLA warehouse and into the military service issue location."

The success at Lackland is paving the way for expanded use of RFID technology beyond recruit clothing issue to the organizational clothing and individual equipment item segments of DLA's clothing supply chain, she said.

Tsao said warfighters benefit because activities issuing clothing will be better equipped with right-sized inventories to meet demands. Tracking items throughout their lifecycle will also ensure warfighters receive serviceable property in good condition because supply specialists can better identify expired and recalled items.

"Greater accuracy in inventory data and shipment information enhances inventory management and accountability while greatly reducing the time required to issue clothing to warfighters," Tsao said.

So far, clothing vendors have been motivated to assist in the RFID process because they have the potential to get paid faster for goods supplied.

"Since DLA Troop Support pays a vendor only after it verifies the correct order has been shipped and received, streamlining these processes could speed up the payment to the vendors," Tsao said. "This is important to the viability of



Hand-held radio frequency identification readers, as seen here, are part of the technology the Defense Logistics Agency is using to revolutionize clothing procurement.

smaller vendors with limited cash flow."

Tsao said plans also call for extending DLA's use of RFID technology to track higher-value items and those requiring more intense lifecycle management. These products include chemical protective clothing and body armor, which are more expensive and must be tested periodically for performance.

Expanding use of RFID technology to these types of items makes good business sense, but it also demonstrates the agency's dedication to warfighter readiness and support, she said.

"In the event of a product recall, RFID provides the capability of identifying bad or unserviceable assets quickly for removal from the supply chain," Tsao said. "It also allows for systems to be put in place to track equipment issue to an individual warfighter so recalled assets can be recovered and replacements sent out quickly." ★



Research and Development



Modern Edge

Story by Beth Reece



When enemy attacks on Humvees led to increased casualties in Iraq, the military's industrial partners scrambled to produce up-armor kits that protected passengers from improvised explosive devices and small-arms fire. Personal equipment like helmets and vests eventually saw similar improvements.

Upgrades in military equipment often make use of emerging technology. And as technology advances, so must the testing capabilities at the Defense Logistics Agency's Product Testing Centers, said Keith Robinette, PTC director. Testing done inside PTC labs helps ensure the parts military customers buy are manufactured according to contract specifications and technical data.

Researchers have spent the past year studying PTC capabilities and forecasting technology trends that will likely drive the need for new equipment and specialized training throughout the labs. The study is scheduled for completion at the end of September and will include recommendations on how DLA can best balance new requirements and decreasing budgets.

"It's important that we take a long, hard look at how emerging technologies should or might impact our business

A welder at Pearl Harbor Naval Shipyard, Hawaii, prepares to weld titanium piping within an environmentally controlled chamber. Testing of titanium has become so advanced that leaders of Defense Logistics Agency's Product Test Centers are weighing how to incorporate these methods into current testing processes.

as we maintain our ability to test the vast majority of items that DLA manages," Robinette said. "As we make those determinations, we also have to consider exactly which of our customers' requirements are growing and the fact that there's a lot of competition for funding."

Leaders at DLA supply chains will evaluate study results and decide on the best path forward, then the PTCs will evaluate whether new test processes are necessary, he added.

Breakthroughs in 3-D technology, ballistics, fiber optics and titanium represent just a few of the areas where PTC capabilities might need growth, said Joe Doyle, a senior consultant for LMI, the government consulting group heading the study.

As differences in the various forms of titanium become more apparent, for example, testing methods have become more sophisticated and expensive, Doyle said. Known for having the highest strength-to-weight ratio of any metal and for resisting corrosion, titanium is used in such items as UH-60 Blackhawk rotor blades and armor on Bradley fighting vehicles.

Current PTC capabilities allow technicians to perform dimensional measurements and x-rays that analyze the

— Photo by Clarence Freeman



Photo courtesy DLA Land and Maritime

Al Knight performs conditioning, charging and reserve-capacity testing on batteries at the Electronics Product Test Center in Columbus, Ohio.

composition of coating in titanium, as well as the coating's depth.

Newer tests include blue etch anodizing, a nondestructive technique that detects surface problems like cracks, heat-treated imperfections and other abnormalities caused by machining.

"The [blue etch anodizing] testing process is complex, and the equipment is expensive to purchase and maintain," Doyle said. "There are few labs certified to perform BEA analysis."

Another new method of testing titanium is phased array ultrasound. It involves submerging the item in a large pool of fluid, but is even more expensive and requires a lot of real estate, he added.

The increasing use of 3-D technology to depict the technical data of items like the Mine Resistant Ambush Protected vehicle and .50-caliber machine gun is another area where technology improvements will be considered.

"Commercial manufacturing processes have changed to the point where there are very few people on the

manufacturing line, so a 3-D technical-data package is produced and fed into the manufacturer's system and the equipment manipulates itself to create the final product. You see this frequently in the automotive industry," Doyle said.

The 3-D data reveals more information than traditional two-dimensional blueprints. The problem DLA faces, said Cliff Wolfe, the agency's program manager for Weapons Systems Sustainment and study manager, is that the agency's procurement systems

have not been converted to accept 3-D drawings.

"It is very difficult to find manufacturers with experience interpreting our current technical-data packages, which are based to a large extent on 2-D drawings," Wolfe said, adding that the Defense Department incurs additional costs each time a manufacturer has to convert 2-D drawings to modern 3-D models.

Steve Finney, site manager for the mechanical testing lab in Columbus, Ohio, has already seen military customers move toward the application of 3-D technical data packages.

"If the military uses a 3-D technical-data package to procure material, then it will be necessary for the lab to be able to read and test using 3-D technology," he said.

The rapid advance of fiber optic technology and its increasing use in military systems may also lead to updated test

As commercial manufacturers continue using 3-D technology to depict technical data of equipment such as these MK19 automatic grenade launchers, the Defense Logistics Agency's Product Test Centers must advance from using traditional 2-D blueprints.

Army Spec. John Crosby





Marines install fiber optics for communications capabilities at Camp Leatherneck, Afghanistan. Scientific improvements in fiber optics may drive technology improvements at the Defense Logistics Agency's product test centers.

equipment. Fiber optics uses plastic fibers to transmit data and is commonly used for tactical communications, digital functions in aircraft and surveillance systems.

Scientific improvements in fiber optics have allowed greater amounts of data to pass through a smaller physical presence because the fibers are thinner.

"As that changes, then the measurement equipment and the connectivity equipment within the labs also needs to change," Doyle said.

Even the new improved outer combat vest could benefit from more advanced ballistics testing that measures the vest's durability against higher caliber and higher velocity weapons, he added.

While most of the items DLA manages can be tested at PTCs, the product verification offices that

coordinate testing for each supply chain do send some products to industry and service labs. DLA Troop Support, formerly Defense Supply Center Philadelphia, works closely with the Army's Aberdeen Test Center in Maryland, for example. And DLA Aviation, formerly Defense Supply Center Richmond, Va., works with test centers at Robins Air Force Base, Ga., and Hill Air Force Base, Utah.

"We have vast testing capabilities, but we are not – nor do we want to be – capable of testing everything. That would not be a financially sound decision," Robinette said.

The benefit of using DLA's labs, Wolfe added, is that the agency "owns" the test data and more stringent procedures can be used when necessary, particularly

when there are suspicions a part may be counterfeit and a supplier's integrity is in question.

Partnerships with industry and service labs, and the special functions at each, will be considered as DLA leaders determine where to improve PTC equipment. But keeping DLA's testing centers up-to-date will require more than just equipment.

"That's the one thing people tend to gravitate toward when we talk about keeping up with technology, but I believe the critical path is training technicians to operate the equipment," Doyle said.

DLA's four PTCs include the Analytic/Chemical PTC, which is colocated with DLA Troop Support in Philadelphia and primarily tests clothing and textile items. The Electronics PTC in Columbus, Ohio, tests electronic components, including aviation electronics. And at Mechanical PTCs in Columbus and French Camp, Calif., technicians conduct dimensional and material testing and nondestructive tests that don't alter the physical state of or destroy the sample.

The labs employ about 70 technicians altogether. In the first two quarters of fiscal 2010, they collectively completed an average of 1,357 tests a month, compared to an average of 1,285 in fiscal 2009. Being qualified for this type of work takes years of rigorous training, he said.

"The people who do these tests and operate the equipment don't get trained overnight. In some cases it takes multiple years to be qualified, so when you lose just one technician, you also lose the education, experience and expertise that went into making that individual a superb testing technician," Doyle added. "You can't replace that overnight." ♦

Research and Development



WE ARE DLA

More Than a Name Change

Story by Beth Reece

Ask Soldiers who've used a former Defense Reutilization and Marketing Office to locate a hard-to-find repair part if they've ever done business with the Defense Logistics Agency, and you might get "Who?" for an answer.

The Defense Department's only combat logistics support agency has field sites in 48 states and 28 countries to help customers get the supplies they need, but their organizational names often reflect missions or locations without associating them to the larger DLA enterprise.

The "We Are DLA" initiative launched by DLA Director Navy

Vice Adm. Alan Thompson in July is expected to create a single-agency environment that lets customers know exactly "who" DLA is and helps the agency build a greater sense of community among its global workforce.

The first step in emphasizing DLA's identity was the renaming of field activities to clearly identify each as a part of DLA. The former Defense Energy Support Center is now DLA Energy, for example, and the former Defense Supply Center Philadelphia is DLA Troop Support. The new names reflect each activity's affiliation with DLA, as well as the commodity or

service it provides to customers.

Signs, websites and marketing materials will gradually change to depict the new names. The cost of these changes will be minimal because items like identification badges and marketing materials will be replaced only after current supplies are exhausted or natural wear and tear requires replacement, according to officials in the agency's Human Resources and Enterprise Transformation directorates.

Thompson said he began noticing that customers and employees sometimes regarded DLA as a group of independent, loosely affiliated organizations in 2004, when he commanded Defense Supply Center Columbus, Ohio. The Columbus supply center is now known as DLA Land and Maritime.





DEFENSE LOGISTICS AGENCY A GLOBAL ENTERPRISE

"We want to be unified in our approach to deliver what warfighters expect from us and be viewed by our stakeholders as a single enterprise," Thompson said.

The unified approach, he added, is especially critical as DLA continues integrating additional responsibilities and personnel from the military services through the Base Realignment and Closure 2005 recommendations.

"I think the resulting transparency will educate our customers on the total width and breadth of the enterprise behind their logistics services," Thompson said. "Also, I believe it will enlighten our employees on both their place in this worldwide enterprise and the wide range of possibilities inherent in working for a global agency."

This is the first time in DLA's 49-year history that an attempt has been made to make organizational names consistent, the director added. It's not, however, the first time DLA employees have struggled

to help customers view the agency's numerous activities as one entity.

In 2008 and 2009, Army Col. Bill McCarver, former DLA Pacific commander, united DLA activities in Alaska, Hawaii, Okinawa, Guam, Japan and Korea by replacing activity-specific building signs with ones that now read "Defense Logistics Agency."

By visually representing the numerous field agencies as part of the DLA enterprise, "we can present a single focal point to the combatant commanders, the sub-unified commands and military service components here in the Pacific and provide better customer assistance, war-planning interfaces and logistics solutions," McCarver said in mid 2009.

Other employees have already made

it part of their job to represent their activity as a member of the DLA enterprise by assisting customers even if the items sought are provided by another of the agency's field activities.

Adam Cohen, commodity chief for lumber and building supplies at DLA's office in Kaiserslautern, Germany, occasionally gets phone calls for other product lines. Rather than tell a caller he's got the wrong number, he connects them with the correct DLA representative.

"And an action passed is never an action completed. You've still got to follow up and ensure that customer got the help they needed," Cohen said. "All of our customers are ultimately DLA customers, regardless of the commodity they need. A DLA commodity is a DLA commodity." ☀



Ten Questions with . . .

Mike Scott

Executive Director for Materiel Policy, Process and Assessment Talks Hot Topics in Research and Development

1. As a 24-year veteran of the Defense Logistics Agency, you have served in various positions at the agency's headquarters and its land and maritime field activity in Columbus, Ohio. In your opinion, how did these prior assignments prepare you to lead the agency's logistics research and development efforts?

I started my DLA career through the intern program in Columbus and was fortunate to engage in challenges in Business Systems Modernization, demand and supply, acquisition and materials, and distribution and requirements systems. I came to headquarters in 2003 to lead what is now DLA Strategic Plans and Policy. These unique positions shaped my global view of supply chain challenges and the overall experience provided a broad perspective of improvements we should be pursuing in logistics R&D.

Defense Logistics Agency Photo



Mike Scott

2. How would you describe logistics R&D at DLA?

The R&D program is the agency's virtual laboratory to hone new and improved methods and techniques for delivering parts, supplies, food and medical support to warfighters and other customers. We start with a documented challenge hindering DLA's ability to serve customers. We solicit known or strongly researched solutions to remedy the issue, which

are then tested to determine if there is a better process or technique than we currently use. If it turns out to be a better resolution, we have a strong potential solution to implement.

We have built a fairly standardized process for describing a problem, potential solutions, and approaching the overall R&D effort. The effort is then sponsored by the field activity with expertise in the area we are trying to improve and a senior agency leader. This gives us an expert partner in the R&D effort with the experience to recognize when something is not working, so we can adjust course to improve results or answer the project.

3. DLA's logistics R&D program is made up of two activities targeting different, critical parts of the agency's operations – the Logistics Technology Demonstration program and Manufacturing Technology program. How does

Research and Development Logistics Technology Demonstration Program High-Value Product

this two-part structure benefit warfighters?

Ensuring warfighter access to the most advanced technology is a cornerstone of the National Defense Strategy, and DLA's R&D program ensures internal agency processes and industrial base processes are able to meet customers' rapidly changing requirements.

In the Logistics Technology Demonstration program, our focus is on internal DLA processes, such as planning and technical quality. The Manufacturing Technology program is a department-wide program that aims to improve manufacturing processes. Since DLA is the major user of many technologies, we want to help the nation's industrial base improve, and ManTech is the way to do that.

4. DLA's logistics R&D program is financed through appropriated funds, which account for about 2 percent of the agency's overall operating budget. What is DLA's return on R&D investment?

DLA regularly performs robust business-case analyses on its R&D projects to document monetary and non-monetary benefits from those investments. The agency's industrial partners benefit from the risk reduc-

tion DLA-funded research provides, and DLA benefits because it is providing higher-value products and services to warfighters.

Modern microcircuits, for example, are part of the microelectronics composing the brains of our weapon systems. They have a production lifecycle of three to five years, but DoD weapon systems have lifecycles measured in decades. DLA would have a large gap in its ability to supply these items if it had not invested in the capability to produce microcircuits industry does not find economical to sustain.

Instead of turning customers away, we've provided more than 100,000 parts for 450 weapon systems. The military services have avoided spending more than \$600 million to work around problems caused by what would have been non-procurable parts.

5. DLA's senior leaders value close relationships with the agency's partners in industry. How important are these relationships to R&D team success?

DLA's industrial base partners are the foundation and the most critical link in the supply chain. Industrial partners are distributors or manufacturers that provide items needed by warfighters. Regardless

of their specific business, we help our partners help us make things better for customers and save money for taxpayers. Because our suppliers are partners, they must be considered from the design phase all the way through the life cycle of a weapon system. We strive to ensure the nation's industrial base meets warfighters' needs, and our goal is locating and fostering American technologies and industries to ensure future needs are met.

6. Long lead times necessary to fully establish a logistics R&D program can result in missed opportunities for rapid response to emerging technological requirements. How does the Supply Chain Management program get emerging requirements into the logistics R&D pipeline?

Supply chain management is an integrated process of planning, sourcing, acquiring and delivering customer-required material and services. The complexity of newer weapon systems and the need to continue supplying replacement parts for older platforms makes



Products and Services Supply Chain Management Program Manufacturing Technology

TEN QUESTIONS WITH... .

synchronizing these efforts a challenge one DLA overcomes remarkably well.

Synchronizing supply and demand rates for weapon systems requires efficient flow of information between industrial-base suppliers, logistics managers and customers. This is where the Supply Chain Management program comes into play. It is DLA's R&D incubator where innovative ideas and processes are first piloted on a small scale. Using emerging technologies to help improve the speed at which DLA analyzes, plans, sources, buys or acquires, and delivers items without increasing costs means we provide significant value to warfighters and taxpayers.

7. Originally a brainchild of the logistics R&D program, DLA's expeditionary depot has the capacity to rapidly establish distribution functions in a new theater of operations anywhere in the world. How has logistics R&D continued to work with expeditionary depot planners?

Military actions are won or lost on the ability of critical supplies to reach the front lines. Today's military deployments depend upon efficient distribution of supplies for success; the expeditionary depot is DLA's method to bring these critical supplies to wherever the frontline may be.

In 2008, through the Node Management and Deployable Depot Advanced Concept Technology

Demonstration, DLA demonstrated the capabilities of its expeditionary depot. Today, DLA R&D is refining distribution visibility capabilities, developing ways to match expeditionary depot stocks to mission needs and integrating DLA Disposition Services' capabilities into the package. When fully implemented, these capabilities will provide superior warfighter support with a greatly reduced logistics footprint.

8. What are some other widely known agency programs born through logistics R&D?

Radio frequency identification tagging of clothing and individual equipment is a notable R&D success. Use of RFID technology improves asset tracking and reduces time required to locate expired, recalled or unserviceable assets. In addition, the technology allows for improvements and efficiencies in all nodes of the military apparel supply chain.

We also worked with the Combat Rations Network to develop ultrasonic sealing for ready-to-eat meal pouches. The process has replaced heat-sealing, which can trap food in the seal, allowing air into the pouch and the product to spoil. This change means meals can be produced 40 percent faster and with an 81 percent drop in rejected components, saving taxpayers \$4 million annually.

9. Logistics R&D is one of five major organizations within your oversight. How do these other teams round out DLA's daily support to customers?

I develop and oversee enterprise-wide processes that DLA's eight supply chains and three support activities use in their daily operation. The five major organizations under my office are; Order Management, Inventory Management, Planning, Technical and Quality Assurance, and Business Integration.

These offices anticipate warfighters' needs so DLA supplies items when needed at the best price. Team members understand items' engineering requirements and ensure delivered parts meet those specifications. We also establish policy and procedures for getting items from a source – be that a DLA or vendor warehouse – directly to warfighters. These are just a few responsibilities we have to support warfighters with the most innovative technology on the battlefield or at home.

10. What do you see on the horizon for logistics R&D at DLA?

My vision for the future of DLA R&D programs is based on a partnership with the industrial base and DLA's primary level field activities, to adapt, mature and transition advanced technologies so the agency can deliver effective and economical warfighter support.

Price Challenge Reaps Savings for Navy, Taxpayers

The Navy now has an uninterrupted supply of an important helicopter engine parts at a much lower cost thanks to Defense Logistics Agency Land and Maritime.

An acquisition specialist in the Land and Maritime Supply Chain Detachment in Philadelphia awarded a contract earlier this year to supply 340 of the gaskets, which are manufactured by General Electric and used in the T-58 engine on Marine Corps CH-46E "Sea Knight" helicopters. Among other duties, these work-horse helicopters enable resupply operations at sea.

One-hundred-forty-eight gaskets are demanded annually, but officials said only 70 were on hand at domestic depot locations. At that rate, backorders would have



occurred within six months without a new contract award.

Diligent price-challenge efforts by the acquisition team, in conjunction with Defense Contract Management Agency, led to the discovery that required parts were available in General Electric's inventory.

The original price quote was for the item was \$54.88 per piece, but as a result of the price challenge, the government was able to procure the parts at \$1.11 each – a savings of \$20,201 on the contract.

The Navy's Pacific Fleet, specifically ships based out of Miramar and Camp Pendleton, Calif., and Okinawa, Japan, housing these helicopters, has historically been the main customer for this part.

— DLA Land and Maritime Public Affairs Office

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- Mr. John Johns, Director, Iraqi Security Forces Logistics, United States Forces-Iraq
- Mr. Richard "Andy" Hove, Executive Vice President and President, Defense, Oshkosh Corporation
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Money Matters

UNDER PRESSURE

Editor's note: This story marks the beginning of a new department in Loglines that will focus on the Defense Logistics Agency's efforts to support warfighters in a constrained budget environment.

The catastrophic oil leak in the Gulf of Mexico wasn't the only gusher workers struggled to cap this summer.

At the urging of Defense Secretary Robert Gates, officials across the Defense Department are working to stem the geyser of defense spending ushered in by the Sept. 11, 2001, terrorist attacks. Through across-the-board belt tightening and streamlining, planners said they hope to find \$100 billion in savings, which can then be applied to ensuring warfighters remain equipped to defend the nation in the future.

Additional reporting by Jim Garamone, American Forces Press Service

While the defense budget is not being decreased, it won't be increasing at the same rate it has over the past decade, Ashton Carter, undersecretary of defense for acquisition, technology and logistics, said in a news briefing early this summer.

Without pointing to specific programs or procurements that might be cut, Defense officials said nothing is off the table when it comes to finding efficiencies because the sheer volume of savings is unlikely to be realized by simply grabbing low-hanging fruit.

The department is projected to get a bit more than 1 percent of real growth, but that increase is not enough to ensure servicemembers receive the best equipment. The \$100 billion in savings Gates said he hopes to realize over the next five fiscal years would be put back into acquisitions and modernization investments.

"With \$400 billion in contracts across the department, the Pentagon must become more efficient in the way it buys goods and services," Gates said.

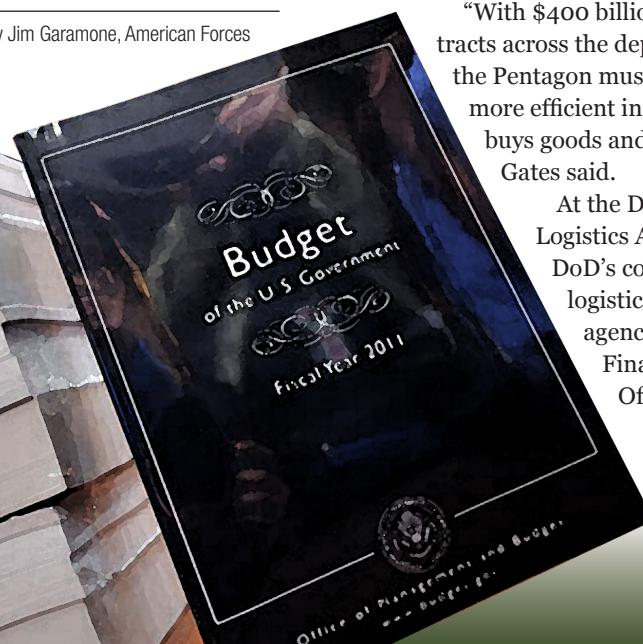
At the Defense Logistics Agency, DoD's combat logistics support agency, Chief Financial Officer Tony

Poleo said the agency's leadership team saw the looming national financial picture and has already put the organization on the cost-cutting path. Part of the 2010 Director's Guidance, DLA's pursuit of stewardship excellence aims to provide best logistics value for each taxpayer dollar spent.

External pressure on the Defense Department's budget is coming, in part, from entitlements like Social Security and Medicare and Medicaid, which are consuming a larger part of federal expenditures. It's also coming from interest accruing on the nation's debt, which, while a relatively small percentage now thanks to record-low interest rates, can only go up, he explained.

"Just like at home, you can't spend money you don't have in the long term, or you'll get yourself in trouble. Everyone can relate to that these days," Poleo said. "To be able to get two or three percent of real growth out of the budget, when the pie is only being increased by one percent, we will have to make some hard choices."

Intensifying DLA's efforts to prioritize operations and review every business area for efficiencies is part of the agency's process to prepare a budget submission for fiscal 2012 through 2016. As part of Gates' cuts, DLA is expected to slash \$222 million from its appropriated funding, which accounts for about 2 percent of the agency's annual operating budget.



Cherie Cullen



Defense Logistics Agency officials have already begun cost-cutting measures in line with Stewardship Excellence initiatives outlined in the 2010 Director's Guidance that will dovetail Defense Secretary Robert Gates' departmentwide savings efforts.

Although DLA is a smaller player on the appropriated side, in comparison to heavily appropriated, traditional defense agencies such as the Missile Defense Agency, Defense Contract Audit Agency, and Defense Contract Management Agency, it is still responsible for carrying its share of the savings load.

Right now, the instructions from DoD are that the \$222 million is leaving DLA to be realigned to support modernization of the military forces, Poleo said. On the military service side, each branch is expected to realign \$2 billion from the "tail," or support functions, to the "tooth," or combat operations.

While the majority of DLA's operating dollars come from the Defense Working Capital Fund, which has not been assigned a specific savings target, the agency "earns" this money through its sales of goods and services to the military. So while there is no exact mark for DLA to hit, money will be carved from DWCF via the military services, which will be looking to DLA to help them make their savings goals, he said.

"If the services can decrease the amount of costs on their purchases from DLA, that's money they can then take out of support areas and move to the tooth," Poleo said.

Responding to the secretary's call will require significant attention from the agency's leadership team, and the areas in which DLA needs to find efficiencies will drive which leaders are involved.

But at the end of the day, Poleo said, these cuts shouldn't frighten or alarm DLA team members.

"Our folks are tuned in; they watch TV; they read the news; they saw Secretary Gates [discussing these cuts]. We're going to have to identify efficiencies and take some risk where we don't have things laid out in detail yet, but once we sign up, we will deliver," Poleo said. "The efficiencies we're looking for are manageable given that we're talking about fiscal 2012 through 2016."

"As a result of DLA's stewardship efforts, people are already achieving efficiencies and our business results are very positive, which gives us kind of a running start. We are in a strong position, and that ought to help us [as we move forward]," he said.

DLA officials said they expect to work closely with partners in the military services and industry as the review process progresses.

"We've been doing the right things, but what we need is to keep at it and probably redouble our efforts because the bar has been raised," Poleo said.

Tale of the Tape

\$222 million dollars, approximately 2% of the Defense Logistics Agency's annual operating budget, will be slashed from agency appropriated-funds accounts

DLA Annual Operating Budget

Department of Defense Budget

External pressures are becoming an increasing part of federal expenditures prompting realignment of funding to support modernization of the military services. Cost-cutting measures on purchases made through DLA will help the services meet their own savings goals.



Defense Logistics Agency Disposition Services operates around the world, disposing of excess equipment, like these medical supplies being sorted in Manas, Kyrgyzstan. The Disposition Services Simulation Lab will offer hands-on training for employees to improve the processing of equipment and inventory.

Air Force Staff Sgt. Carolyn Vess

McNally said. "It will offer our workforce better training through hands-on and simulation exercises. Better trained personnel provide warfighters better support, which is why we exist."

Having a place to offer hands-on training and test new procedures is something disposition team members and leaders have wanted for a long time, McNally said. Historically, employees have been trained through classroom instruction, but have always asked for hands-on experience to better prepare them for their disposition work, she said.

"We're going toward a more military model of training, where you go in and have your lecture and then you practice it. You have the hands-on; you actually touch and feel property," she said. "I think it'll just be good for the workforce. And, it'll increase productivity; we'll be more efficient and be better providers of this service to the warfighter."

The Sim Lab is slated for implementation in three phases: a study to identify a concept of operations, curriculum and costs; setup of the simulation lab and commencement of training classes; and sustainment and follow-on projects, such as creation of a portable training lab and new curriculum modules.

DLA Disposition Services has received the go-ahead to begin the second phase and is waiting for a signed service agreement before setting up the Sim Lab, McNally said. While waiting on that agreement, she said, she and her staff are positioning inventory and equipment they'll need so they can move immediately once it is place.

TRAINING SIMULATOR

Story by Sara Moore

Warfighters use training simulators to build the skills they'll need before taking to the battlefield where lives are on the line.

At Defense Logistics Agency Disposition Services, formerly the Defense Reutilization and Marketing Service, officials are using the simulation concept to aid team members that process and handle excess and unused military equipment.

Properly disposing of excess items is an important job that helps support warfighters in the field, saves taxpayers' money and protects the environment, officials explained. The concept being

developed at DLA Disposition Services, the DLA activity responsible for managing reuse, transfer, donation, and sale or disposal of excess and surplus property, is expected to prepare workers for this critical mission and improve training throughout the organization.

The Disposition Services Simulation Lab, or Sim Lab, will be a controlled environment that will give employees hands-on training in processing inventory and will allow for testing new procedures or technologies, said Kristy McNally, Disposition Services research and development program manager.

"The Simulation Lab is a strategic approach in investing in the future,"

"The Simulation Lab is a strategic approach in investing in the future. It will offer our workforce better training through hands-on and simulation exercises."

— Kristy McNally

The Sim Lab will most likely be one facility run by a program manager, with a set inventory of about 3,000 line items to train new employees and will be used to test new procedures or changes to procedures that might come up, McNally said.

World events, such as the May recall of 44,000 Army combat helmets due to improper testing, can alter the way DLA Disposition Services handles property and can require additional guidance, she said.

The Sim Lab will allow the disposition team to test out new procedures before they're fielded with the hope of spotting potential issues, McNally said.

"It gives us an opportunity to go through the steps for whatever the new process or guidance that we're trying to put out," she said. "And that saves money."

Streamlining processes and saving money ties into the 2010 DLA Director's Guidance focus area of Stewardship Excellence, but the Sim Lab will also improve the focus areas of Workforce

Development and, ultimately, Warfighter Support Enhancement, McNally said.

"Since the Sim Lab offers our employees better training, it will improve our culture because a highly trained workforce is a more productive and efficient workforce," she said. "It will offer our employees more opportunity for growth as the Sim Lab expands its requirements to include leadership training." *



Marine Cpl. Justin Staples, a wrecker operator with Marine Wing Support Squadron, places metal scraps in the back of a dump truck at the motor transport lot at Al Asad Air Base, Iraq. Staples is preparing the metal scraps to be taken to the Defense Logistics Agency Disposition Services site at the base.

— Photo by Marine Lance Cpl. Chance M. Hiser



I AM

DLA

My name is:

Bill Johnson

I am:

A program manager for Defense Logistics Agency Research and Development's Advanced Microcircuit Emulation program.

Describe your job in a sentence:

As part of the Microcircuit Emulation Team, I direct development of new capabilities DLA will need to meet future microcircuit spare-part requirements.

How long have you worked at DLA?

I have worked for DLA for 19 years, but also spent seven years supporting R&D as a contractor.

What is your favorite thing about working for DLA?

As an electronics engineer, working at DLA has given me an opportunity to have a rewarding career and, in some small way, to pay back the men and women who volunteer to defend our freedom. It's more than just a paycheck to me.

What is your best memory of working here?

I was at a conference when an Air Force customer told me microcircuit emulation was the best thing DLA had ever done for him. It was gratifying to know customers recognize DLA will go above and beyond for them. I'm privileged to part of a team of dedicated, high-performing individuals that ensure the program succeeds.

How do you make a difference to warfighters?

Right now, microcircuit emulation is supporting more than 350 different weapon systems, many of which are deployed to Iraq and Afghanistan. What that means to warfighters is one more tank, one more airplane or one more survival radio that they can count on to work.

